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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/699,567

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Surya Varanasi

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EXAMINER

PATEL, CHANDRAHAS B

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/699,567	Applicant(s) VARANASI ET AL.	
	Examiner Chandahas Patel	Art Unit 2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-105 is/are pending in the application.
- 4a) Of the above claim(s) 3-5,23-25,43-45,63-65,83-85 and 102 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-22,26-42,46-62,66-82,86-101 and 103-105 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/9/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's arguments filed 12/26/2007 have been fully considered but they are not persuasive.

Applicant argues that Yamada and Munter do not teach all ports operate at the same rate. This is a newly added limitation to the claims which is addressed below.

Applicant argues that Munter does not teach trunking of physical ports to form a logical port. However, examiner disagrees. Munter clearly teaches bundling plurality of physical ports to form a logical port in Col. 5, lines 29-32.

Applicant argues that Yamada does not teach selecting a physical port based on a tag added to the frame after the frame enters the switch. However, examiner disagrees. Yamada clearly teaches adding the tag after the frame enters the switch and selecting a physical port based on the tag. Applicant argues that Yamada makes a selection of physical port before the tag is added, the opposite of the claim requirement where the selection is based on the tag. However, examiner disagrees. The claim requires a selection of physical port based on tag added to the frame after the frame enters the switch. Yamada teaches applying a label and transmitting through appropriate physical port based on the label [See Fig. 3].

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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2. Claim 1, 21, 41, 61, 81 and 101 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In claims 1, 21, 41, 61, 81 and 101 applicant claims that all ports are operating at the same rate. The original submitted specification at the time of filing does not describe any such requirement or describe the use, advantage, or necessity of having all ports at the same rate. Page 18 of specification submitted on 10/31/2003 states balancing traffic that includes communication paths having different bandwidths. This clearly contradicts the claimed subject matter. Therefore, the examiner considers the amended claim feature as new matter since there is not support in the submitted specification for the amended claim feature.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 2, 6-22, 26-42, 46-62, 66-82, 86-101, 103-105 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (USPN 7,203,762) in view of Munter (USPN 7,209,659) and further in view of Battle et al. (USPN 7,088,713).

Regarding claim 1, Yamada teaches a method of routing a flow of frames [**Abstract**] comprising: applying a correspondence between plurality of logical ports and a plurality of physical ports of a switch [**Fig. 6, Virtual sending ports & MPLS-SIDE physical ports**]; frames exiting the switch via the physical ports [**Fig. 14, S24**], a selected physical port for at least one of the frames exiting the switch being selected based at least in part on the

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correspondence [Fig. 14, S23, **physical port is determined based on mapping shown in L1 table in Fig. 6**].

However, Yamada does not teach at least one logical port having corresponded a plurality of physical ports to form a trunked group wherein frames in a trunked group are delivered in order; balancing frame traffic through the switch using the plurality of logical ports, with any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group; and all ports operate at the same rate.

Munter teaches at least one logical port having corresponded a plurality of physical ports to form a trunked group [Col. 5, lines 29-31] wherein frames in a trunked group are delivered in order [Col. 6, lines 24-29]; balancing frame traffic through the switch using the plurality of logical ports [Col. 5, lines 32-34], with any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group [Col. 6, lines 24-29]. Battle teaches all ports operate at the same rate [Fig. 2, **all ports are at 10 Gbps**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to balance the traffic at logical port and have in order deliver of frames since the links have different capacity therefore each link has different rate which would cause imbalance which would need to balance out [Col. 5, lines 32-34] and operate all ports at the same rate so that all ports can be configured to operate in a specific mode [Col. 6, lines 49-51].

Regarding claims 2, 14, 22, 34, 42, 54, 62, 74, 82, 94, Yamada further teaches physical port for each of the frames exiting the switch is selected based on the correspondence between logical and physical port [Fig. 14, S23, **where physical port is determined based on mapping shown in L1 table in Fig. 6**].

Regarding claims 6, 9, 26, 29, 46, 49, 66, 69, 86, 89, 103, 104, Yamada further teaches balancing comprises applying a pseudo-random process to select a particular logical port as an egress port; the particular logical port is being selected for a particular frame exiting switch [**Col. 11, lines 9-20**].

Regarding claims 7, 10, 27, 30, 47, 50, 67, 70, 87, 90, Battle teaches applying a hash function when selecting ports [**Col. 6, lines 10-20**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply a hash function when selecting ports so that trunk can be selected based destination address and source address [**Col. 6, lines 10-20**].

Regarding claims 8, 11, 28, 31, 88, 91, Yamada further teaches correspondence is employed to determine the physical port to which to route particular frame based at least in part on the logical port selected as particular logical port [**Col. 11, lines 13-20**].

Regarding claims 12, 15, 32, 35, 52, 55, 72, 75, 92, 95, 105, Yamada further teaches applying weights to select a particular logical port of the switch as an egress port for a particular frame exiting the switch [**Col. 5, lines 9-15, service-dependent forwarding applies weights to paths where a path will be selected by a specific port**].

Regarding claim 13, 16, 33, 36, 51, 53, 56, 71, 73, 76, 93, 96, Yamada further teaches correspondence is employed to determine the physical port to which to route particular frame based on the logical port selected as a particular port [**Col. 11, lines 13-20**].

Regarding claims 17, 19, 37, 39, 57, 59, 77, 79, 97, 99, Yamada further teaches a selected physical port is selected based on a source tag and/or a destination tag added to the frame after the frame enters switch [**Col 8, lines 8-13**].

Regarding claims 18, 20, 38, 40, 58, 60, 78, 80, 98, 100, Yamada further teaches source tag and/or destination tag is stripped off before the frame exits the switch **[Fig. 9, S12]**.

Regarding claim 21, Yamada teaches an apparatus **[Fig. 7, 20]** comprising: a switch **[Fig. 7, 20]** including a processor **[Fig. 7, 22]** and memory **[Col. 4, lines 56-59, switch has a routing table which is stored in memory]**; the switch further including a plurality of logical and a plurality of physical ports, and having the capability to route a flow of frames exiting the switch **[Fig. 6, Virtual sending ports and MPLS-side physical ports]**; the switch being adapted to apply a correspondence between plurality of logical ports and a plurality of physical ports of a switch **[Fig. 6, Virtual sending port & MPLS-SIDE physical port]**; frames exiting the switch via the physical ports **[Fig. 14, S24]**, a selected physical port for at least one of the frames exiting the switch being selected based at least in part on the correspondence **[Fig. 14, S23, physical port is determined based on mapping shown in L1 table in Fig. 6]**.

However, Yamada does not teach at least one logical port having corresponded a plurality of physical ports to form a trunked group wherein frames in a trunked group are delivered in order; balancing frame traffic through the switch using the plurality of logical ports, with any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group and all ports operate at the same rate.

Munter teaches at least one logical port having corresponded a plurality of physical ports to form a trunked group **[Col. 5, lines 29-31]** wherein frames in a trunked group are delivered in order **[Col. 6, lines 24-29]**; balancing frame traffic through the switch using the plurality of logical ports **[Col. 5, lines 32-34]**, with any frames exiting the switch via physical ports forming

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a trunked group being balanced over the physical ports forming the trunked group [**Col. 6, lines 24-29**]. Battle teaches all ports operate at the same rate [**Fig. 2, all ports are at 10 Gbps**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to balance the traffic at logical port and have in order deliver of frames since the links have different capacity therefore each link has different rate which would cause imbalance which would need to balance out [**Col. 5, lines 32-34**] and operate all ports at the same rate so that all ports can be configured to operate in a specific mode [**Col. 6, lines 49-51**].

Regarding claim 41, Yamada teaches a switch fabric [**Fig. 7**] comprising: at least a first switch [**Fig. 7, 10**] and a second switch [**Fig. 7, 20**]; the first switch including a processor [**Fig. 7, 22**] and memory [**Col. 4, lines 56-59, switch has a routing table which is stored in memory**]; the switch further including a plurality of logical and a plurality of physical ports, and having the capability to route a flow of frames exiting the switch [**Fig. 6, Virtual sending ports and MPLS-side physical ports**]; the switch being adapted to apply a correspondence between plurality of logical ports and a plurality of physical ports of a switch [**Fig. 6, Virtual sending port & MPLS-SIDE physical port**]; frames exiting the switch via the physical ports [**Fig. 14, S24**], a selected physical port for at least one of the frames exiting the switch being selected based at least in part on the correspondence [**Fig. 14, S23, physical port is determined based on mapping shown in L1 table in Fig. 6**].

However, Yamada does not teach at least one logical port having corresponded a plurality of physical ports to form a trunked group wherein frames in a trunked group are delivered in order; balancing frame traffic through the switch using the plurality of logical ports, with any

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frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group and all ports operate at the same rate.

Munter teaches at least one logical port having corresponded a plurality of physical ports to form a trunked group [Col. 5, lines 29-31] wherein frames in a trunked group are delivered in order [Col. 6, lines 24-29]; balancing frame traffic through the switch using the plurality of logical ports [Col. 5, lines 32-34], with any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group [Col. 6, lines 24-29]. Battle teaches all ports operate at the same rate [Fig. 2, all ports are at 10 Gbps].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to balance the traffic at logical port and have in order deliver of frames since the links have different capacity therefore each link has different rate which would cause imbalance which would need to balance out [Col. 5, lines 32-34] and operate all ports at the same rate so that all ports can be configured to operate in a specific mode [Col. 6, lines 49-51].

Regarding claims 48, 68, Yamada further teaches correspondence is employed to determine the physical port to which to route particular frame based at least in part on the logical port selected as particular port [Col. 11, lines 13-20].

Regarding claim 61, Yamada teaches a network [Fig. 27] comprising: a host [Fig. 27, 41]; a physical storage unit [Fig. 27, 41, 41 is a desktop computer which has physical storage]; a first switch [Fig. 7, 10] and a second switch [Fig. 7, 20] communicatively coupled to form a switch fabric [Fig. 27, 401 and 402 are switches described in more detail in Fig. 7]; the first switch and second switch further communicatively coupled to the host and physical storage unit [Fig. 27, 401 and 402 are coupled to 41]; the first switch including a processor [Fig. 7, 22]

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and memory [Col. 4, lines 56-59, switch has a routing table which is stored in memory] and further including a plurality of logical and a plurality of physical ports [Fig. 6, Virtual sending ports and MPLS-side physical ports]; the switch being adapted to apply a correspondence between plurality of logical ports and a plurality of physical ports of a switch [Fig. 6, Virtual sending port & MPLS-SIDE physical port]; frames exiting the switch via the physical ports [Fig. 14, S24], a selected physical port for at least one of the frames exiting the switch being selected based at least in part on the correspondence [Fig. 14, S23, physical port is determined based on mapping shown in L1 table in Fig. 6].

However, Yamada does not teach at least one logical port having corresponded a plurality of physical ports to form a trunked group wherein frames in a trunked group are delivered in order; balancing frame traffic through the switch using the plurality of logical ports, with any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group and all ports operate at the same rate.

Munter teaches at least one logical port having corresponded a plurality of physical ports to form a trunked group [Col. 5, lines 29-31] wherein frames in a trunked group are delivered in order [Col. 6, lines 24-29]; balancing frame traffic through the switch using the plurality of logical ports [Col. 5, lines 32-34], with any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group [Col. 6, lines 24-29]. Battle teaches all ports operate at the same rate [Fig. 2, all ports are at 10 Gbps].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to balance the traffic at logical port and have in order deliver of frames since the links have different capacity therefore each link has different rate which would cause imbalance which

would need to balance out **[Col. 5, lines 32-34]** and operate all ports at the same rate so that all ports can be configured to operate in a specific mode **[Col. 6, lines 49-51]**.

Regarding claim 81, Yamada teaches an article comprising: a storage medium having stored thereon instructions, that when executed, result in performance of a method of routing a flow of frames **[Col. 7, lines 33-36]** comprising: applying a correspondence between plurality of logical ports and a plurality of physical ports of a switch **[Fig. 6, Virtual sending ports & MPLS-SIDE physical ports]**; frames exiting the switch via the physical ports **[Fig. 14, S24]**, a selected physical port for at least one of the frames exiting the switch being selected based at least in part on the correspondence **[Fig. 14, S23, physical port is determined based on mapping shown in L1 table in Fig. 6]**.

However, Yamada does not teach at least one logical port having corresponded a plurality of physical ports to form a trunked group wherein frames in a trunked group are delivered in order; balancing frame traffic through the switch using the plurality of logical ports, with any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group and all ports operate at the same rate.

Munter teaches at least one logical port having corresponded a plurality of physical ports to form a trunked group **[Col. 5, lines 29-31]** wherein frames in a trunked group are delivered in order **[Col. 6, lines 24-29]**; balancing frame traffic through the switch using the plurality of logical ports **[Col. 5, lines 32-34]**, with any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group **[Col. 6, lines 24-29]**. Battle teaches all ports operate at the same rate **[Fig. 2, all ports are at 10 Gbps]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to balance the traffic at logical port and have in order deliver of frames since the links have different capacity therefore each link has different rate which would cause imbalance which would need to balance out [**Col. 5, lines 32-34**] and operate all ports at the same rate so that all ports can be configured to operate in a specific mode [**Col. 6, lines 49-51**].

Regarding claim 101, Yamada teaches an article comprising: a storage medium having stored thereon instructions, that when executed, result in performance of a method of initializing a switch to route a flow of frames [**Col. 7, lines 33-39**] comprising: initializing a correspondence between a plurality of logical ports and a plurality of physical ports of a switch [**Fig. 6, Virtual sending ports & MPLS-SIDE physical ports**]; frames exiting the switch via the physical ports [**Fig. 14, S24**], a selected physical port for at least one of the frames exiting the switch being selected based at least in part on the correspondence [**Fig. 14, S23, physical port is determined based on mapping shown in L1 table in Fig. 6**].

However, Yamada does not teach at least one logical port having corresponded a plurality of physical ports to form a trunked group wherein frames in a trunked group are delivered in order; balancing frame traffic through the switch using the plurality of logical ports, with any frames exiting the switch via physical ports forming a trunked group being balanced over the physical ports forming the trunked group and all ports operate at the same rate.

Munter teaches at least one logical port having corresponded a plurality of physical ports to form a trunked group [**Col. 5, lines 29-31**] wherein frames in a trunked group are delivered in order [**Col. 6, lines 24-29**]; balancing frame traffic through the switch using the plurality of logical ports [**Col. 5, lines 32-34**], with any frames exiting the switch via physical ports forming

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a trunked group being balanced over the physical ports forming the trunked group [**Col. 6, lines 24-29**]. Battle teaches all ports operate at the same rate [**Fig. 2, all ports are at 10 Gbps**].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to balance the traffic at logical port and have in order deliver of frames since the links have different capacity therefore each link has different rate which would cause imbalance which would need to balance out [**Col. 5, lines 32-34**] and operate all ports at the same rate so that all ports can be configured to operate in a specific mode [**Col. 6, lines 49-51**].

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chandrahas Patel whose telephone number is (571)270-1211. The examiner can normally be reached on Monday through Thursday 7:30 to 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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